

Golg Ore-forming System Qinling Orogenic Belt, China

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The tectonic framework of Qinling orogenic belt shows as three blocks and two belt. In the case of building and evolution of Qinling orogene, sedimentation, metamorphism, magmatism and a variety of fluid activities have been involved in the occurred and the features of the deposits, the gold deposits in this area can be divided into six type: Donggouba type, Larima type, Lijiaba type, Manaoke type, Dashui type and Shangwang type gold deposits.. The essential features of the gold ore-forming system as shown follows:

① The diversity and episodes of host rock in which ore deposits occur are common in the orogene; ② Most of the gold deposits are closely related to the structure-magma belts in the space, time and origin; ③ Most of the gold orebodies are obviously controlled by the fracture system, many gold orebodies occur in the fracture zone; ④ The gold of almost all deposits have the microgranular and disseminated structure, they are invisible; ⑤ The elements assemblage of gold deposits is mostly Au, Hg, Sb, As (gold, mercury, antimony, arsenic), occasionally associated with W, U, Te, Se, Cu, Pb, Zn, Ag and Pt (tungsten, uranium, tellurium, selenium, copper, lead, zinc, silver, platinum); ⑥ The alteration type mainly are the lower temperature hydrothermal ones, including silicification, sericitization, chloritization, pyritization, carbonation, baritization etc; ⑦ The ore-forming mass and auriferous fluid derived from several sources, for instance, magmatic water, underground water, meteoric water and metamorphic water and so on; ⑧ There were multi-episodes of gold mineralization in the geological history of Qinling orogene.

Regionally, the evolution history of gold mineralization in the orogene can be divided into six episodes according to ore isotope age of the typical deposits: Specially, the gold mineralization of Indosinian-Yanshan episode (230-50 Ma) have made the most contribution to the significant industrial orebody, and the gold mineralization of Jinning (800 Ma) and Quaternary have made less contribution. Our research results show that the forming of the large gold deposit in this area have gone through a long evolution of ore-forming, from the pre-enrichment of gold to the forming and emplacement of gold deposit. The gold in Larima deposit, for example, had a beginning of enrichment in Caledonian-Hercynian epoch (421 Ma, 319 Ma), and formed the industrial orebody in

Indo-Sinian and Xishan epochs (227 Ma, 192 Ma, 49Ma). In a word, the huge gold ore-forming system of Qinling orogenic belt is characterized by its long evolution and features of inherited and superimposed ore-forming.